

105 Rec'd PCT/PTO 30 SEP 1997

US

FORM PTO-1390 (REV. 10-94)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				0190 US/P
INTERNATIONAL APPLICATION NO. PCT/DE97/00187	INTERNATIONAL FILING DATE 26 January 1997	U.S. APPLICATION NO. (If known, see 37 CFR 1.3) <b>08/930735</b>		
PRIORITY DATE CLAIMED 27 January 1996				
TITLE OF INVENTION DEVICE FOR PREVENTING OR REDUCING TIPPING OF THE HEAD				
APPLICANT(S) FOR DO/EO/US SEMSCH, Angelika et al.				
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:				
<p>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</p> <p>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))</p> <p style="margin-left: 20px;">a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> has been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</p> <p>7. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p style="margin-left: 20px;">a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</p> <p style="margin-left: 20px;">b. <input type="checkbox"/> have been transmitted by the International Bureau.</p> <p style="margin-left: 20px;">c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p style="margin-left: 20px;">d. <input type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p>				
Items 11. to 16. below concern document(s) or information included:				
<p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>13. <input type="checkbox"/> A <b>FIRST</b> preliminary amendment.</p> <p style="margin-left: 20px;"><input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.</p> <p>14. <input type="checkbox"/> A substitute specification.</p> <p>15. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>16. <input type="checkbox"/> Other items or information:</p>				

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)		INTERNATIONAL APPLICATION NO. <b>PCT/DE97/00137</b>		ATTORNEY'S DOCKET NUMBER <b>-0190 US/P</b>	
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<p>17. <input type="checkbox"/> The following fees are submitted:</p> <p><b>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</b></p> <p>Search Report has been prepared by the EPO or JPO ..... \$910.00</p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) ..... \$700.00</p> <p>No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) ..... \$770.00</p> <p>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$1040.00</p> <p>International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) ..... \$96.00</p> <p style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></p>				<p><b>CALCULATIONS</b>    PTO USE ONLY</p>																					
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$ 910.00																					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 20%;">CLAIMS</th> <th style="width: 20%;">NUMBER FILED</th> <th style="width: 20%;">NUMBER EXTRA</th> <th style="width: 20%;">RATE</th> <th style="width: 20%;"></th> </tr> <tr> <td>Total claims</td> <td>9 - 20 =</td> <td></td> <td>X \$22.00</td> <td>\$</td> </tr> <tr> <td>Independent claims</td> <td>1 - 3 =</td> <td></td> <td>X \$80.00</td> <td>\$</td> </tr> <tr> <td colspan="4">MULTIPLE DEPENDENT CLAIM(S) (if applicable)</td> <td>+ \$260.00</td> </tr> </table>				CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		Total claims	9 - 20 =		X \$22.00	\$	Independent claims	1 - 3 =		X \$80.00	\$	MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$260.00	\$ 130.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE																						
Total claims	9 - 20 =		X \$22.00	\$																					
Independent claims	1 - 3 =		X \$80.00	\$																					
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$260.00																					
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 040.00																					
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				\$ 520.00																					
<b>SUBTOTAL =</b>				\$ 520.00																					
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$																					
<b>TOTAL NATIONAL FEE =</b>				\$ 520.00																					
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$																					
<b>TOTAL FEES ENCLOSED =</b>				\$ 520.00																					
				Amount to be: refunded \$																					
				charged \$																					

a. ☒ A check in the amount of \$ 520.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.

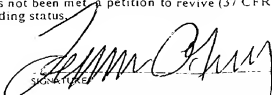
c. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 12-1099. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

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REGISTRATION NUMBER



08930735 . 095610 #3

Rec'd PCT/PTO 03 NOV 1997

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : ANGELIKA SEMSCH ET AL.  
Serial No.: 08/930,735  
Filed : September 29, 1997  
Title : DEVICE FOR PREVENTING OR REDUCING TIPPING OF  
THE HEAD

P R E L I M I N A R Y   A M E N D M E N T

Hon. Commissioner of Patents and Trademarks,  
Washington, D. C. 20231

S i r :

Preliminary to examination kindly amend the above-identified application as follows:

In the Claims:

Claim 5 (amended). Device according to [one of the preceding claims] claim 1, characterized in that the head-support element is formed by cushion-like elements [(1a, 1b; 11a, 11b)] which are of elongate shape.

Claim 6 (amended). Device according to [one of the preceding claims] claim 1, characterized in that the cushion-like element or elements [(1a, 1b; 11b)] forming the head-support element have connecting devices [(4a, 4b; 14a, 14b)] which permit a releasable connection of the cushion-like elements to one another and/or a releasable connection to the connecting section [(3a, 3b; 13a, 13b)] and/or to the weight element [(2)].



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Claim 7 (amended). Device according to [one of the preceding claims] claim 1, characterized in that the connecting section [(3a, 3b; 13a, 13b)] is formed by two flexible, support-like elements.

Claim 8 (amended). Device according to [one of the preceding claims] claim 1, characterized in that the connecting section [(3a, 3b; 13a, 13b)] has connecting devices [(15a, 15b)], which permit a releasable connection of parts of connecting sections to one another and/or a releasable connection to the head-support element [(1a, 1b; 11a, 11b)] and/or to the weight element [(2)].

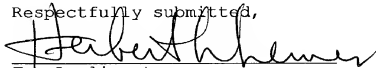
Claim 9 (amended). Device according to [one of the preceding claims] claim 1, characterized in that the effective dimensions of the connecting section [(3a, 3b; 13a, 13b)] can be varied by means of an adjustment mechanism or variable connection means.

Remarks:

The preliminary amendment is being filed in an effort to present an application in proper U.S. format for examination.

An early action on the merits of the claims is requested.

Respectfully submitted,

  
For Applicants

/tg

October 29, 1997

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Device for avoiding or limiting  
the tilting of the head .

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**Description**

The present invention relates to a device in accordance with the preamble of Patent Claim 1, i.e. a device for avoiding or limiting the tilting of the head forwards and/or to the side of a passenger sitting in a seat which has a backrest, having at least one one-piece or multi-piece head-support element which comprises one or more cushion-like elements.

It is known that the head of a passenger tilts or falls slightly forwards and/or to the side, particularly when the passenger is sleeping.

This is an uncomfortable position which can impair sleep and can cause painful contractions of the muscles of the neck.

Moreover, in such situations the mouth of the sleeping passenger often opens, so that saliva can run out,

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resulting in the unpleasant effect of also affecting the clothing of the sleeping passenger.

5 If the seat is a seat or a child seat in a car or the like, there is furthermore the risk of the head of the sleeping passenger, which is hanging freely forwards or to the side, being thrown around in an unsupported manner in the event of an accident, which can very quickly lead to serious injuries such as whiplash and  
10 the like.

A device which is intended to prevent the head of a passenger from tilting is known from DE 94 18 878 U1; this device is a device in accordance with the preamble  
15 of Patent Claim 1.

The known device is a head-support-like arrangement, which can be mounted on backrests of seats by screw clamps or the like. It essentially comprises a flexible  
20 rear wall and two side pads. Hook-and-loop fastenings and various rubber coatings, by means of which the pads can be fastened and held together while holding the entire head, are arranged on the side pads. Clearly, this known device does not provide a high level of  
25 comfort either when putting it on or when wearing it.

A further device in accordance with the preamble of Patent Claim 1 is known from US 5 330 255. The device described in that document is an inflatable cushion,  
30 which is anchored firmly to a vehicle seat and, when used as intended, essentially surrounds the back of the neck and the side parts in particular of the neck; the front part of the neck is largely free, in order to allow the device described to be put on and taken off.  
35 As a result, the device is comparatively simple to use, but only prevents the head from tilting forwards to a very limited extent.

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The present invention is therefore based on the object of providing a device which is comfortable to put on and wear reliably and safely for avoiding or limiting the tilting of the head forwards and/or to the side of a passenger sitting in a seat which has a backrest.

This object is achieved according to the invention by means of the features claimed in the characterizing part of Patent Claim 1.

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Accordingly, it is provided that the one or more cushion-like elements are designed and dimensioned such that, in the position worn as intended, they are able to completely surround the side and front sections of the neck and/or of the head of the passenger, resting on the shoulders and/or the chest region of the passenger.

15

Due to the fact that the head-support element is designed to completely surround the side and front sections of the neck and/or of the head of the passenger in the position worn as intended, it is possible reliably to prevent the head from tipping to the side and from tipping forwards.

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Due to the fact that the head-support element is designed, in the position worn as intended, to rest on the shoulders and/or the chest region of the passenger, there is no need for a particularly stable fastening of the head-support element to the seat or to the passenger; rather, the device according to the invention can be put on, for example, simply by hanging it around the passenger and throwing a part of the device which is connected to the head-support element and is referred to as the connecting section over the backrest and/or the headrest of the seat.

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Particularly when the said connecting section is guided over and beyond the backrest of the seat, it proves advantageous if, as claimed in Patent Claim 3, the connecting section is provided with a weight element which, in the position resting or hanging behind the passenger, counteracts any movement of the head-support element out of its intended use position.

If the connecting section is suspended around or over a headrest provided on the seat, it is generally sufficient if the connecting section is suitable, for example, to be placed on the headrest or is designed as a loop or the like which can be laid around the headrest.

Despite the extreme simplicity of putting on the device according to the invention, the latter remains in its intended position (against the neck and/or against the head of the passenger) for a long period of time, where it reliably fulfils its role (holding the head).

Consequently, a device which is comfortable to put on and wear and reliably and safely avoids or limits the tilting of the head forwards and/or to the side of a passenger in a seat which has a backrest has been provided.

Advantageous refinements of the invention form the subject-matter of the subclaims.

The invention is described in more detail below on the basis of exemplary embodiments and with reference to the drawing, in which

Figure 1 diagrammatically shows a top view of a first exemplary embodiment of the device according to the invention for avoiding or limiting the tilting of the head forwards and/or to the



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side of a passenger in a seat which has a backrest, and

5       Figure 2 diagrammatically shows a top view of a second exemplary embodiment of the device according to the invention.

10       The device for avoiding or limiting the tilting of the head forwards and/or to the side of a passenger in a seat which has a backrest is referred to in the following text, for the sake of simplicity, as head-tilting protection for short.

15       The head-tilting protection shown in Figure 1 comprises two head-support elements in the form of cylindrical cushions 1a, 1b, a weight element 2 and a connecting section, which connects the cushions 1a, 1b to the weight element 2 and is in the form of two connecting elements 3a, 3b.

20       The diameter of the cylindrical cushions 1a, 1b is in each case dimensioned such that, in the position in which it rests on a shoulder and/or on the chest region of a passenger and is guided around the neck and optionally around parts of the head (essentially around the lower jaw region of the latter) of the passenger, it can limit tilting of the head in the direction of the cushions. For small and correspondingly light (childrens') heads, it may be sufficient for the  
25       cushion only to run along the neck. Particularly for  
30       larger and consequently also heavier (adults') heads, it may be necessary additionally also to include the lower jaw region.

35       Ideally, the length of the cushions 1a, 1b is dimensioned such that the overall length resulting when they are positioned together is just sufficient to completely surround the side sections and the front section of

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the neck and optionally of the head while resting relatively close against them; current knowledge shows that this is the most comfortable and reliable way of achieving the desired protective effect against tilting of the head. However, the overall length of the cushions may also be longer or shorter (depending, inter alia, on the desired handling, function and mode of action) and the length of the two cushions 1a, 1b may be identical or different.

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The cushions 1a, 1b are of elastic design on the one hand, so that they can be deformed in order to rest more or less closely around side and front sections of the neck and optionally of the head and thus in order for the support which they provide for the head to be comfortable. On the other hand, however, they also have a certain minimum rigidity, in order reliably to be able to hold the head, which is prone to tilting, in its intended (untilted) position.

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On their mutually facing sides and at their free ends, the cushions 1a, 1b have connecting devices in the form of hook-and-loop elements 4a, 4b. The hook-and-loop elements are designed in such a manner that the two cushions 1a, 1b can be connected to form a single continuous cushion by attaching together the hook-and-loop elements. The location and the nature of a connection of this kind within the combination of cushions can be established by the length of the cushions 1a, 1b and the position and the size of the hook-and-loop elements 4a, 4b; a controlled adjustment to the latter makes it possible to adjust (individually adapt) the ease of handling, the effectiveness and the wearing comfort of the head-tilting protection and the strength of the connection.

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Instead of the hook-and-loop elements 4a, 4b, or in addition to the latter, it is also possible to use any

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other desired connecting devices, such as for example mutually attracting magnets, snap fasteners, normal buttons and the like.

5 A deformable, but essentially nonelastic core, which under the application of force can be deformed for a long period of time (until the next exertion of force), may be provided inside the cushions 1a, 1b. In order to keep the risk of injury from a core designed in this  
10 way low in the event of accidents and the like, this core should be relatively easily deformable. The provision of such a core makes it possible to adapt the shape of the cushion for a long period of time to respective shapes of the neck and/or head.

15 The cushions 1a, 1b are preferably covered with a removable and washable cover. The hook-and-loop elements 4a, 4b or other connecting devices are in this case provided on the cover or are at least held such  
20 that they are freely accessible.

In the present exemplary embodiment, the connecting elements 3a, 3b connecting the cushions 1a, 1b to the weight element 2, as shown in the figure, are support-  
25 like elements made of cloth, the cushions 1a, 1b each being connected to the common weight element 2 by means of a separate connecting element 3a, 3b (which is always assigned only to one cushion). The length of the support-like elements or, in more general terms, the  
30 dimensions of the connecting elements are to be set in accordance with the position at which the cushions are to be arranged or held and/or depending on how far behind the passenger or at what level behind the passenger the weight element is to be arrangeable. For  
35 this purpose, a length-adjustment mechanism may also be provided, with the aid of which the length of the support-like elements (the dimensions of the connecting section) are individually adjustable.

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In the present exemplary embodiment, the weight element 2 is formed by sand, which is filled into one or more chambers in a container made of cloth.

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Of course, it is also possible to use a wide variety of materials other than sand. In order to keep the risk of injury from the weight element as low as possible, as is very important in particular when the head-tilting protection is used in vehicles (in the event of accidents), the materials which can be used as an alternative are preferably fine-grained and/or elastic materials and/or materials which do not have sharp edges and corners.

10

Nor is any limitation implied by the fact that the weight element is accommodated in a container made of cloth. The container may also consist of another material or, if the consistency of the material forming the weight allows, may be omitted.

15

The weight element may be of one-piece or multi-piece design. In the event that it is of multi-piece design, it may be provided for it to be possible to fasten the several parts to one another in a detachable manner. This may be done, for example, by attaching the parts together using buttons, snap fasteners, hook-and-loop fasteners, hooks and the like. Such a configuration of the weight element makes it possible to adapt the weight of the weight element optimally to the prevailing circumstances.

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A pocket may be formed on the weight element 2, in which important items, such as for example toys, writing implements, medicaments and the like, can be stored and/or carried, which is very convenient in particular when the head-tilting protection according to the invention is taken on journeys (for use in cars,

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buses, aeroplanes, trains, ships, when cycling (in the child seat), etc.).

- In the position worn as intended, the cushions 1a, 1b which are connected by means of the hook-and-loop elements 4a, 4b are arranged resting on the shoulders and/or the chest region of the passenger, around the side sections and/or the front section of the neck and optionally the lower jaw region of the passenger. The weight element 2 is arranged behind the passenger. In this case, the connecting elements 3a, 3b run over the shoulders and/or a backrest of the seat on which the person is sitting.
- 15 If the design of the backrest allows, the weight element hangs freely downwards behind the said backrest. This has two effects. Firstly, the cushions, which, if they were not being used as a component of the head-tilting protection according to the invention, would sooner or later drop away from the neck, are actively pulled towards the neck (first effect). Secondly, the connecting elements 3a, 3b are pressed onto the shoulders of the passenger and/or the backrest of the seat, as a result of which sliding of the head-tilting protection over the passenger and/or the seat (as would have to occur for the cushions to slip off the neck) is made considerably more difficult or is ruled out altogether (second effect). Which of these effects is pronounced, and to what extent, depends, inter alia, on the absolute mass of the head-tilting protection, on the distribution of the mass within the head-tilting protection and on the friction between the head-tilting protection and the passenger and/or the backrest. In order to prevent the passenger from being throttled, it should be attempted to keep the first effect relatively low, preferably while providing a pronounced second effect. On the other hand, under certain circumstances - if the passenger is to be

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allowed to lean forward - the second effect should also not be excessively pronounced.

5 Some designs of backrest do not allow the weight element to hang downwards behind them. This may be the case, for example, for the rear seats of a passenger car. In this case, it may be provided to lay the weight element on a bearing surface behind the backrest (for example on the rear parcel shelf of the car). The  
10 weight element then presses onto the bearing surface, as a result of which it is much more difficult, or even completely impossible, for it to slip along the bearing surface (as would have to occur for the cushions to slip off the neck) (third effect).

15 In general terms, and to summarise, it is desirable for the head-support element (cushions 1a, 1b), the weight element 2 and the connecting elements 3a, 3b each to have a weight and/or surface finish which are such that  
20 a level of friction which prevents, or at least substantially limits, slipping of the head-tilting protection worn as intended is produced between the respective elements and regions with which the latter are in contact (the contact does not necessarily have  
25 to consist in the elements resting on these regions) or with which they would come into contact in the event of the head-tilting protection worn as intended slipping.

30 The head-tilting protection described is not dependent on the inclination of the backrest and/or of the upper part of the passenger's body. It can be used equally well in an upright position of the seat and in a virtually horizontal position of the seat (as is to some extent the case with, for example, car child and  
35 baby seats).

In the case of car child and baby seats, the connecting elements 3a, 3b are guided over the backrest of the

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seat on which the child or baby seat is mounted. However, this does not alter the fact that here too the head-support element, the weight element and/or the section connecting the head-support element to the weight element are designed in such a manner that the weight element can be guided over at least one shoulder of the passenger and/or the backrest and can be arranged behind the passenger.

Irrespective of the design of the backrest and the correspondingly adapted use of the head-tilting protection, the head-tilting protection according to the invention in accordance with the above-described first exemplary embodiment proves extremely reliable and safe, despite its multifarious and simple applications.

The second exemplary embodiment of the head-tilting protection according to the invention described below with reference to Figure 2 is designed to be hung around a headrest of a vehicle seat or the like.

As can be seen from Figure 2, the head-tilting protection in accordance with the second exemplary embodiment comprises two head-support elements in the form of cylindrical cushions 11a, 11b and a connecting section, which extends from the latter, in the form of two connecting elements 13a, 13b.

The design, function and mode of action of the cushions 11a and 11b and hook-and-loop elements 14a, 14b provided on the latter correspond to the cushions 1a, 1b provided in the first exemplary embodiment and the hook-and-loop elements 4a, 4b provided thereon; for this reason, the statements made with regard to the cushions 1a, 1b and the hook-and-loop elements 4a, 4b fully apply also to the cushions 11a, 11b and the hook-and-loop elements 14a, 14b.

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The connecting elements 13a and 13b correspond to the connecting elements 3a and 3b of the first exemplary embodiment, with the only difference being that in the second exemplary embodiment currently under consideration, unlike in the first exemplary embodiment explained above, there is no weight element provided on the connecting elements, and that the free end sections of the connecting elements 13a, 13b are provided with connecting devices in the form of hook-and-loop elements 15a, 15b, by means of which they can be releasably connected to one another. Apart from the abovementioned differences, the statements made with regard to the connecting elements 3a, 3b also apply to the connecting elements 13a, 13b.

Connecting the connecting elements 13a, 13b by means of the hook-and-loop elements 15a, 15b provided thereon makes it possible to hang them around a headrest arranged on the seat (for example the headrest of a vehicle seat) and hold them there.

Instead of the hook-and-loop elements 15a, 15b, or in addition to the latter, it is also possible to use any other desired connecting devices, such as for example mutually attracting magnets, snap fasteners, normal buttons and the like.

Owing to the relatively large design of the hook-and-loop elements, the latter can be connected to one another in different relative positions, as a result of which the effective dimensions (the effective length) of the connecting sections can be varied, which in turn again makes it possible individually to adjust the position in which the cushions 11a, 11b are to be arranged and held as desired.

The hook-and-loop elements 15a, 15b do not have to be situated on the free end sections of connecting



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elements 13a, 13b of equal length; they may be provided at any desired location of connecting elements 13a, 13b of equal or different length.

- 5 If necessary, one or more weight elements may also be attached to the hook-and-loop elements 15a, 15b or to additionally provided hook-and-loop elements, as a result of which the head-tilting protection under consideration can optionally be used as a head-tilting  
10 protection in accordance with the first exemplary embodiment or as a head-tilting protection in accordance with the second exemplary embodiment.

- The above-described exemplary embodiments of the head-tilting protection according to the invention each have  
15 two cushions which can be joined together as the head-support element. The provision of such a connection of head-support element components which is released automatically under the action of force is particularly  
20 advantageous when travelling in a car. This is because if, in the event of an accident, the head of the passenger moves too violently (for example because the passenger was not belted in and is thrown about), the connection between the cushions is released, thus  
25 protecting the passenger from injury caused by the head-tilting protection.

- The cushion is not limited to a two-part design. Naturally, it is also possible to provide a single  
30 cushion which, like the two cushions 1a, 1b or 11a, 11b, completely surrounds the side and front parts of the neck and optionally of the lower jaw region of the head of the passenger. In this case too, however, at least when the head-tilting protection is used in  
35 vehicles, it should be borne in mind that it must be possible for the head of the passenger to be released automatically in the event of it moving too violently. This can be achieved, for example, by the said single

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cushion being connected to the connecting section 3a, 3b or 13a, 13b in an at least partially releasable manner (for example by means of a hook-and-loop closure). Under certain circumstances, it is possible  
5 to do without such a releasable connection between the cushion and the connecting section, such as for example if, in the second exemplary embodiment, the connecting section and/or the weight element have connections which release automatically in dangerous situations,  
10 thus freeing the head of the passenger.

There is also no limitation on the connection section 3a, 3b or 13a, 13b in each case comprising two support-like elements. Naturally, non-support-like elements  
15 and/or connecting elements which are connected to form a continuous unit (connecting elements of one-piece design) are also suitable for use as connecting section.

20 In the exemplary embodiments described above, all the components of the head-tilting protection are produced from cloth, or at least covered with cloth, but this too does not represent a restriction. Any other desired materials may be used, although it should be ensured  
25 that a level of friction which is able to ensure that the head-tilting protection functions as intended is produced between the head-tilting protection components and the shoulders and/or the chest region of the passenger and/or the backrest of the seat.

30 In the first exemplary embodiment, described initially, of the head-tilting protection according to the invention, the weight element 2 is a weight element which is common to all connecting elements 3a, 3b, but this  
35 again does not represent a limitation. As an alternative, it is also possible to provide a plurality of mutually independent partial weight elements (for example one partial weight element per connecting

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element 3a, 3b). This plurality of partial weight elements may remain permanently separate or may be designed to be releasably connectable, like the cushions 1a, 1b or 11a, 11b, by means of a connecting  
5 device.

To summarise, it may finally be stated that the designs described of the head-tilting protection have provided devices which are comfortable to put on and wear for  
10 reliably and safely avoiding or limiting the tilting of the head forwards and/or to the side of a passenger sitting in a seat which has a backrest.

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**List of reference numerals**

1a	Cushion
1b	Cushion
2	Weight element
3a	Connecting element
3b	Connecting element
4a	Hook-and-loop element
4b	Hook-and-loop element
11a	Cushion
11b	Cushion
13a	Connecting element
13b	Connecting element
14a	Hook-and-loop element
14b	Hook-and-loop element
15a	Hook-and-loop element
15b	Hook-and-loop element

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**Patent Claims**

1. Device for avoiding or limiting the tilting of the head forwards and/or to the side of a passenger sitting in a seat which has a backrest, having at least one one-piece or multi-piece head-support element which comprises one or more cushion-like elements (1a, 1b; 11a, 11b), characterized in that the one or more cushion-like elements are designed and dimensioned such that, in the position worn as intended, they are able to completely surround the side and front sections of the neck and/or of the head of the passenger, resting on the shoulders and/or the chest region of the passenger.
2. Device according to Claim 1, characterized in that the head-support element (1a, 1b; 11a, 11b) continues into a one-piece or multi-piece connecting section (3a, 3b; 13a, 13b), which is provided to hold the head-support element in its intended use position and is designed and dimensioned such that it can be guided over and beyond the backrest of the seat and/or can be suspended around or over a headrest provided on the seat.
3. Device according to Claim 2, characterized in that the head-support element (1a, 1b; 11a, 11b) is connected via the connecting section (3a, 3b; 13a, 13b) to at least one weight element (2), the head-support element, the connecting section and/or the weight element being designed such that the weight element can come to rest or hang behind the passenger.
4. Device according to Claim 3, characterized in that the weight element (2) is essentially formed by sand which is filled into one or more chambers.

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5. Device according to one of the preceding claims, characterized in that the head-support element is formed by two cushion-like elements (1a, 1b; 11a, 11b) which are of elongate shape.
- 5 6. Device according to one of the preceding claims, characterized in that the cushion-like element or elements (1a, 1b; 11a, 11b) forming the head-support element have connecting devices (4a, 4b; 10 14a, 14b) which permit a releasable connection of the cushion-like elements to one another and/or a releasable connection to the connecting section (3a, 3b; 13a, 13b) and/or to the weight element (2).
- 15 7. Device according to one of the preceding claims, characterized in that the connecting section (3a, 3b; 13a, 13b) is formed by two flexible, support-like elements.
- 20 8. Device according to one of the preceding claims, characterized in that the connecting section (3a, 3b; 13a, 13b) has connecting devices (15a, 15b), which permit a releasable connection of parts of 25 connecting sections to one another and/or a releasable connection to the head-support element (1a, 1b; 11a, 11b) and/or to the weight element (2).
- 30 9. Device according to one of the preceding claims, characterized in that the effective dimensions of the connecting section (3a, 3b; 13a, 13b) can be varied by means of an adjustment mechanism or variable connection means.

35

**Abstract**

Device for avoiding or limiting the tilting of the head.

A description is given of a device for avoiding or limiting the tilting of the head forwards and/or to the side of a passenger sitting in a seat which has a backrest, having at least one one-piece or multi-piece head-support element which comprises one or more cushion-like elements (1a, 1b; 11a, 11b). The head-tilting protection described is distinguished by the fact that the one or more cushion-like elements are designed and dimensioned such that, in the position worn as intended, they are able to completely surround the side and front sections of the neck and/or of the head of the passenger, resting on the shoulders and/or the chest region of the passenger.

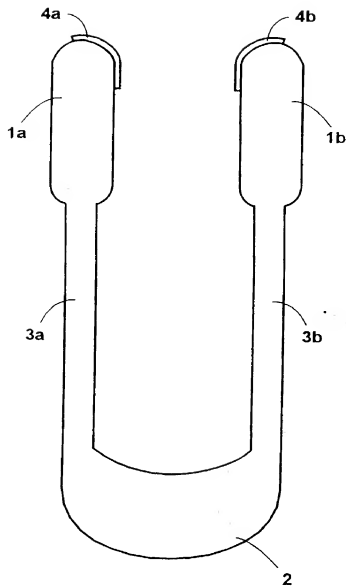


FIG. 1



2/2

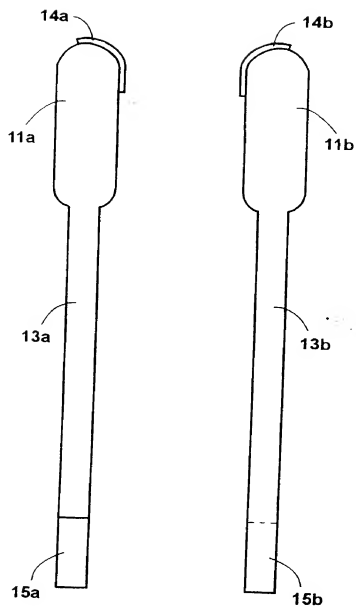
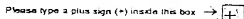


FIG. 2



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Attorney Docket Number	0190 US/P
First Named Inventor	SEMSCH, Angelika

COMPLETE IF KNOWN

Application Number

Filing Date

Group Art Unit

Examiner Name \_\_\_\_\_

☐ Declaration Submitted with Initial Filing      OR      ☐ Declaration Submitted after Initial Filing

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

DEVICE FOR PREVENTING OR REDUCING TIPPING OF THE HEAD

the specification of which

(Title of the Invention)

 is attached here:

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☐ was filed on (MM/DD/YYYY)

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I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56

I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365 (a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
			YES	NO	
19602939.2	Germany	01/27/96	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## DECLARATION

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

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As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to conduct all business in the Patent and Trademark Office connected therewith:

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:

☐ A petition has been filed for this unsigned inventor

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